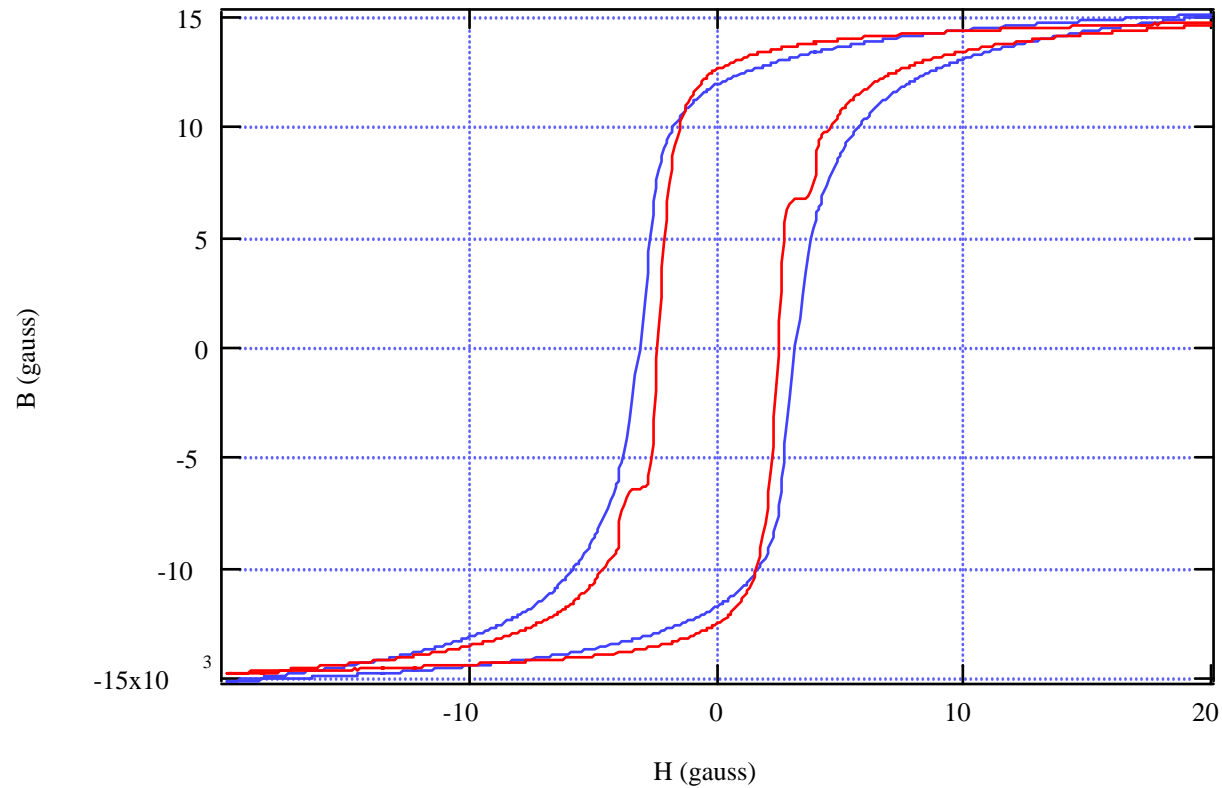


Magnetic Shielding of the Cave



NPDGamma Collaboration
Vancouver
September 28-29, 2002

Shielding Factor

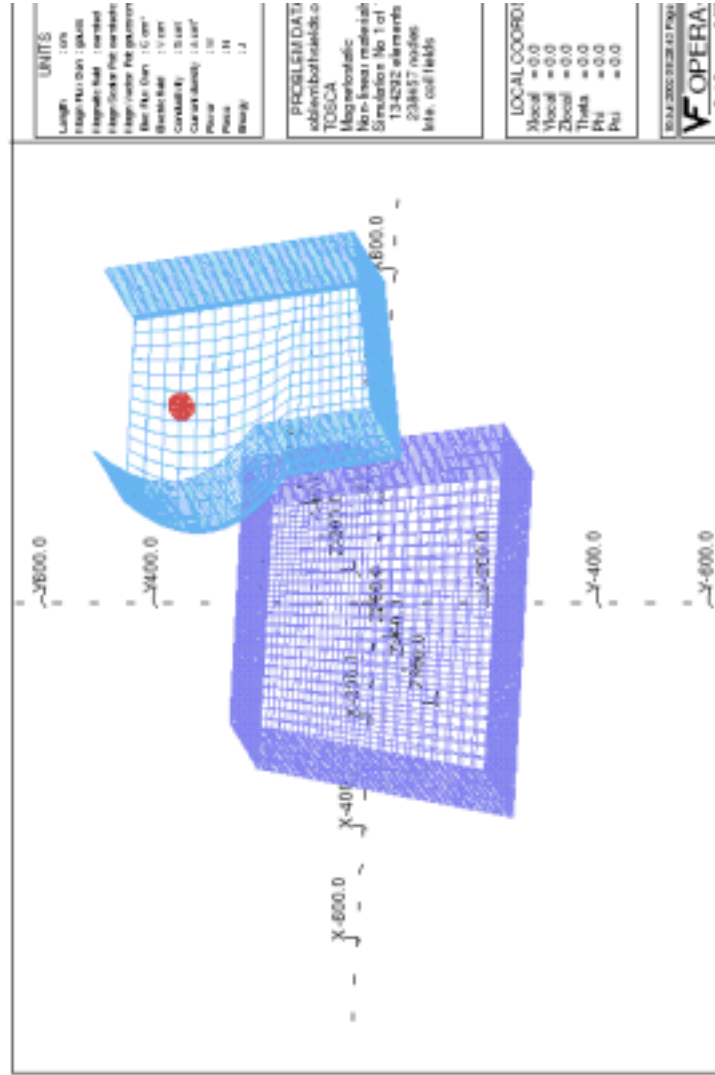
The shielding factor for a cylindrical double-shell shielding is given by

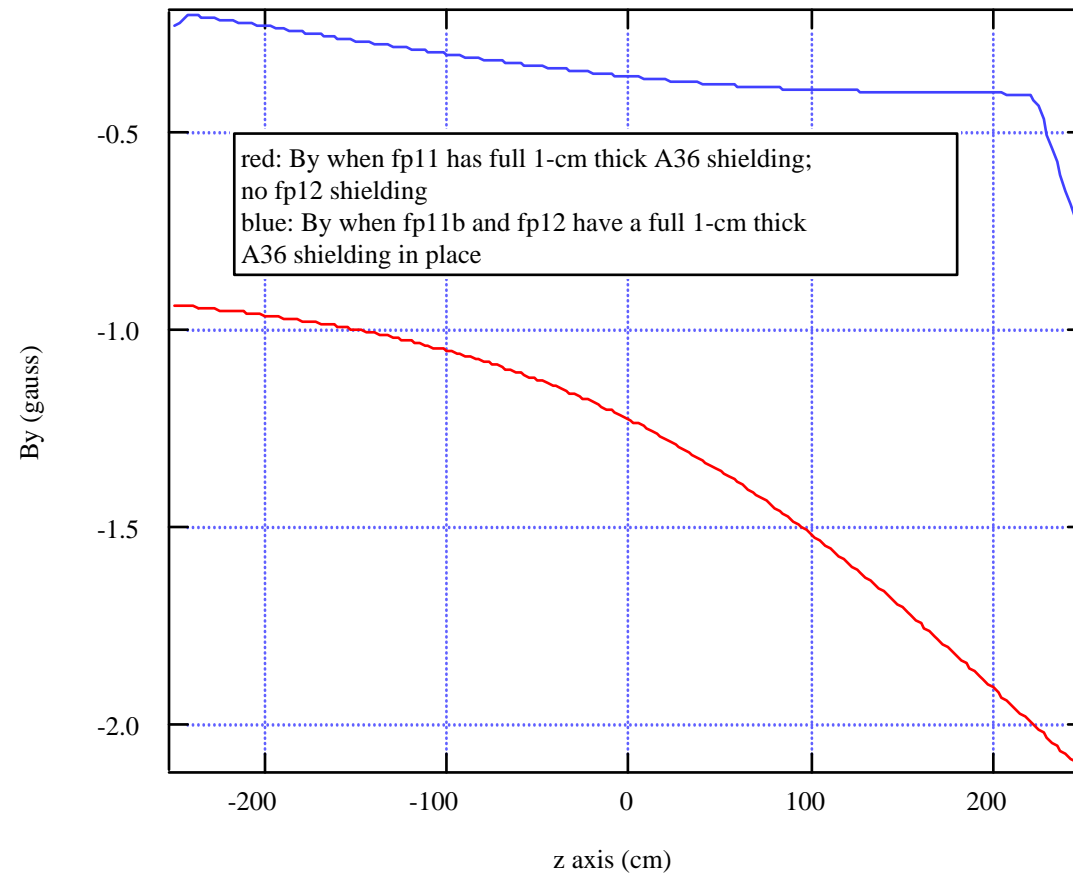
$$S_{\text{tot}} \approx 1 + S_1 + S_2 + S_1 S_2 c,$$

where S_1 and S_2 are axial shielding factors $S_i \approx (1 + a S_{Ti})b$, a , b , and c are constants that can be calculated from [1], $S_{Ti} = \mu t / D_i$, where D_i is the outer diameter of the cylindrical shielding and t is its thickness, and μ is permeability.

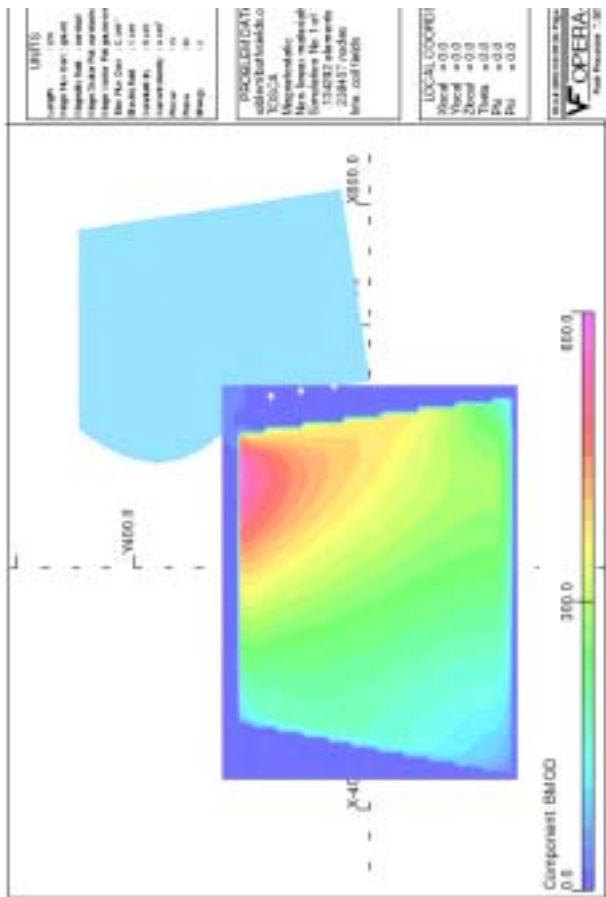
[1] E. Paperno et al. Jour. Appl. Phys. 87, 5959 (2000)

3D model - grid

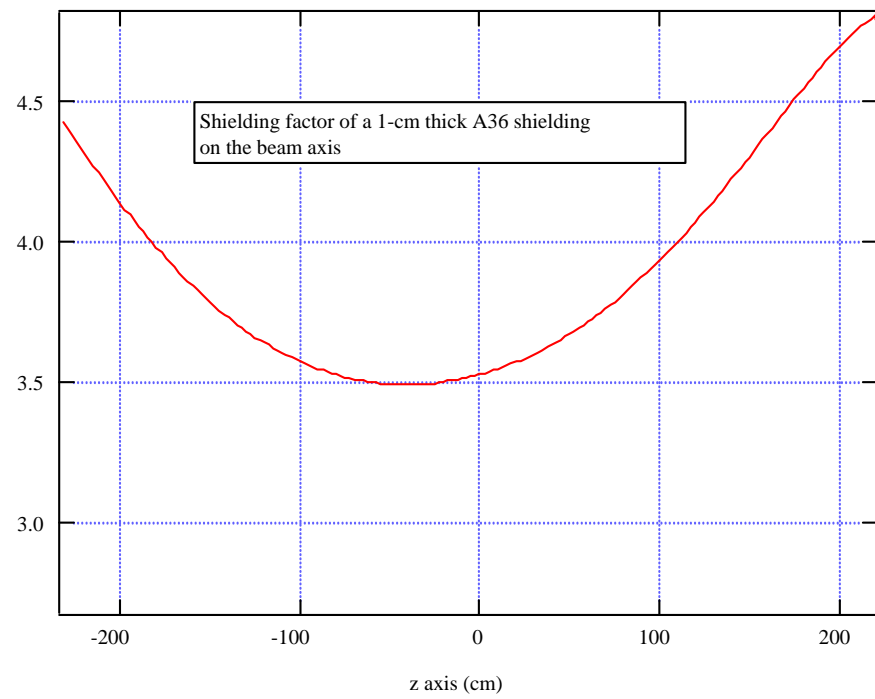


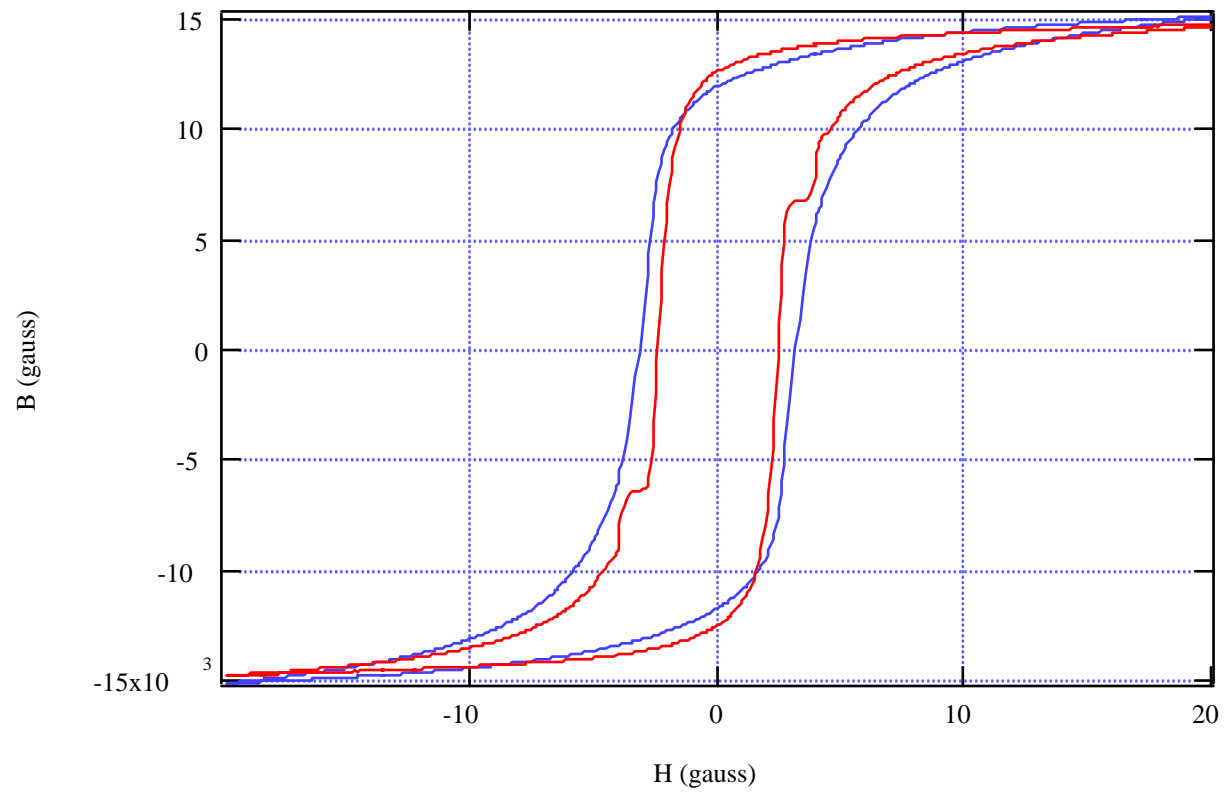


Vertical field at the middle of the npdg cave, Mu of A36 1000 was used

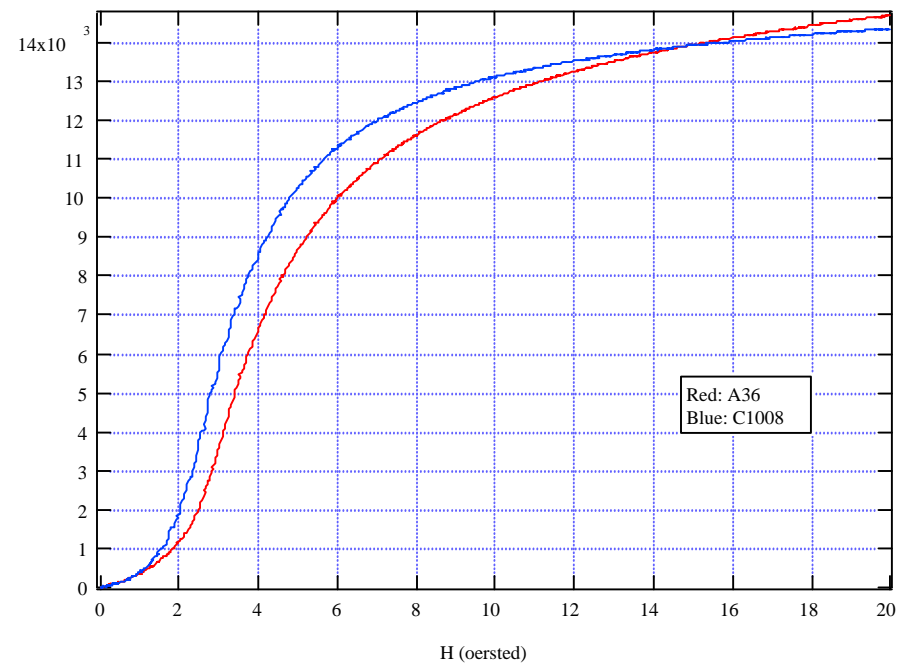


Shielding factor

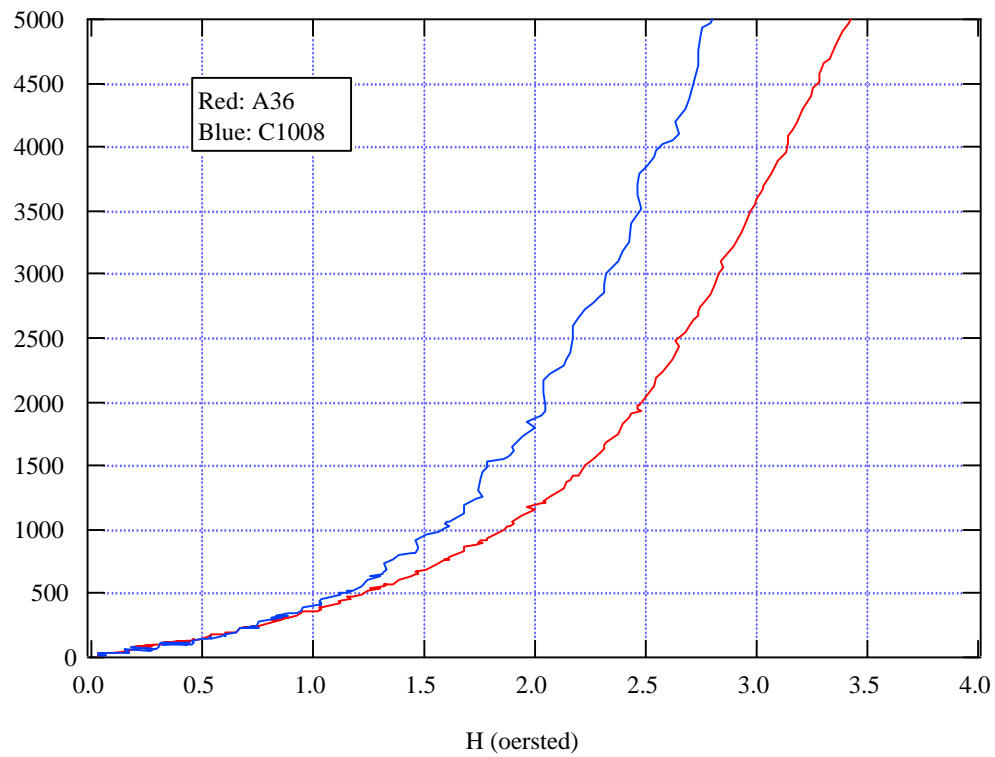




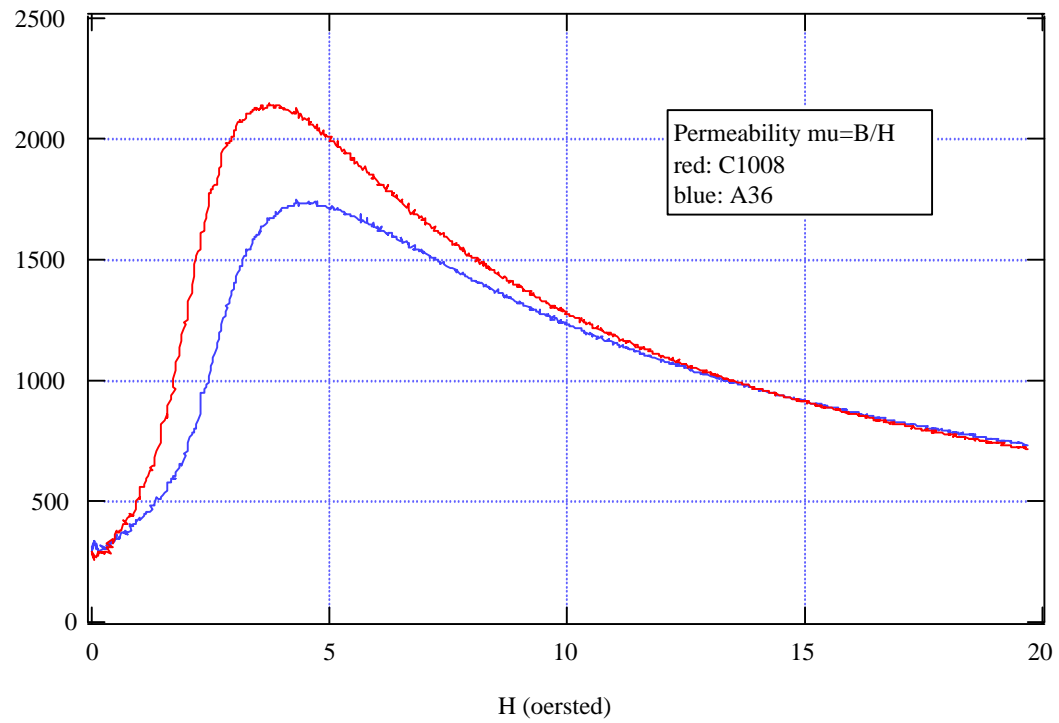
Measured hysteresis curves for untreated A36(red) and C1008 (blue)



Measured initial magnetization curves for A36 (red) and C1008 (blue).



Measured initial magnetization curves at low field values for A36 (red) and C1008 (blue).



Measured permeabilities for A36 (blue) and C1008 (red).

